NAVY MARINE SURFACE OBSERVATIONS (WBAN 11)

This reference manual was prepared for use with punched card deck 110, produced from U. S. Navy ship surface observations taken by Navy vessels, and recorded on mobile station Form WBAN 11.

The use of this weather reporting form was initiated during the early months of 1945, and is still being used in its same form as of the date this manual was written, August 10, 1950.

Prior to 1945, Navy ship observations were recorded on the Navy's Aerological form, source 999, and punched on I. B. M. card number 742227.

Normally, hourly observations were taken and recorded on WBAN 11. However, as few as 8 observations per day instead of 24 are recorded occasionally by most ships.

Copies prepared by the Navy Department of the original WBAN Form 11 were used by the United States Weather Bureau Tabulating Unit from which the cards were punched.

All corrections and entries in red ink, not red lead pencil, appearing on the forms were made by the Navy and punched accordingly.

WEATHER ELEMENTS PUNCHED

When available, the weather elements shown in the heading of the Navy WBAN 11 card, I. B. M. number 787687, shown on the right side of this page, were punched.

GENERAL PRACTICES

Observations taken while a ship was in or near a port were not punched.

This was usually indicated on Form WBAN 11 by the absence of entries or dashes

in the ship's position, course, and speed columns.

Whenever an observation was missing or the ship failed to report for the entire month, no identification cards were punched.

Columns for which data were missing, or obviously in error, were left so blank.

FORM OF PUNCH CARD USED

A standard 80 column punch card designed with special headings for punching Navy ship observations was used.

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REFERENCE MANUAL

			CARD	CONTENT		SOURCE CONTENT
Col ~	item	Code	Code, Definition	· Remarks	Units or Symbols	Reporting and Coding Practices
1	Octant	0,1,2, 3,5,6, 7,8	Division of globe	·	Same as code	
2-3	Latitude	00-90	Angular distance north or south of equator	Punched to whole degrees.	00-90	
4-5	Longitude	00-90	Distance east or west measured by the arc between two meridians, one of which passes through any given point and the other through a point chosen as standard of reference, usually Greenwich, England	Punched to whole degrees.	00-90	
6-7	Year	45	1945Continuous		1945—	·
8-9	Month	01-12	January-December		1-12	
10-11	Day	01-31	Day of month		1-31	
12-13	Hour	00-23	Hour of day	Local Standard time.	0000-0023	Normally, hourly observations were reported. However, less than 24 observations per day are recorded occasionally by most ships.
14-15	Course	00-36	Course of ship	Reported true compass course in whole degrees but punched to nearest tens of degrees.	0-360	·
16	Speed	0 1 2 3 4 5 6 7 8 9 Blank	Ship stopped 1 to 3 knots 4 to 6 knots 7 to 9 knots 10 to 12 knots 13 to 15 knots 16 to 18 knots 19 to 21 knots 22 to 24 knots Over 24 knots Unknown		Same as code	

		•	CARD	CONTENT		· S	OURCE C	ONTEN	r:		
Col – umns	item	Code	Gode Definition	Remarks .	Units or Symbols		Reporting	and Coding	Practices		
17-18	Ceiling Height	00-95	0 to 95 Hundreds of feet		0-95	Reported and punch	ed to neare:	st 100 fee	t		
		XX .	Indicates Unlimited ceiling		Un or Blank						
19-22	Sky . Condition	See Sk	Condition Code in R	eporting and Coding Practices column			SKY	CONDITION	CODE		
	Condition			•				19	Column 20	<u>21</u>	22
						Clear Hi Thin Sctd	-ø/	<u>X</u>	X .	X	<u>c</u>
			•••			Hi Sctd	Φ/	<u>X</u> 2	X	X	
		•		•		Hi Thick Sctd	+0/	<u>X</u> 3	Х	Х	
				•		Hi Thin Brkn	-ø/	<u>X</u>	X	X	•
				_		Hi Brkn	0)	<u>X</u> 5	X	X	
						Hi Thick Brkn	+@/	<u>X</u>	Х	X	•
			•			Hi Thin Ovc	→/	<u>X</u> 7	X	Х .	
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	·		CARD	CONTENT	·	SO	URCE (CONTENT			
Col – umns	item	Code	Gode Definition	Remarks	Units or Symbols		Reporting	and Coding	Practices		
19-22	Sky Condition	See Sky	Condition Code in R	eporting and Coding Practices column		•	SKY C	ONDITION COL	DE .		
	Condition		•			_		19	Columns	21	22
				·		Hi Brkn Lwr Brkn	⊕/⊕	<u>x</u>	. x	x	5
			·			Hi Brkn Lwr Sctd	0/0	<u>X</u>	Height*	Height*	2
				•		Hi Sctd Lwr Sctd	Φ/Φ	<u>X</u>	Height*	Height*	2
			•			Ovc Lwr Brkn	⊕⊅	8	X	Χ .	5
			•	·		Ovc Lwr Sctd	9 0	8	Height*	Height*	2
						Brkn Lwr Brkn	®	5	X	X	5
. •			·	· .	·	Brkn Lwr Sctd	Ф12Ф	5 ·	Height*	Height*	2
			••			Sctd Lwr Sctd	Φ12Φ	2	Height*	Height*	2
						Obscured	Х	0	Х	Х	Х
					· · · · · · · · · · · · · · · · · · ·	*Height of Lower Sca	ttered Cl	ouds.	,		
23-25	Visibility	000 - 990	0 to 99 miles	Tens and units are punched in columns 23 and 24, respectively. Fractions of a mile are punched in column 25.	0-99 Miles	EXAMPLE: Miles 1/16 3/4	<u>23</u> 0 0	Column 24 *0* 0	25 1 9		
		_		•		6 15	0	6 5	0		
26-35	Weather and/or Ob- struction to Vision		Ó								
26	Thunder and	0	No thunder or tornado		Blank						
	Tornado	1 2	Thunder Heavy Thunder		<u>T</u>						
	,	3	Tornado Waterspout		TOR						
:		Blank			Waterspout Missing	-	•				
27		0	No liquid precipi-		Blank]			•		
		1	tation Light rain		R-	1			•		
	,	<u>2</u> 3	Moderate rain Heavy rain		R R+	-					
		4 5	Light rain showers Moderate rain		RW- RW	-					

	-		CARD	CONTENT		SOURCE CONTENT
Col - umns	item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
27	Thunder and Tornado	6 7 8	Heavy rain showers Light freezing rain Moderate freezing rain	·	RW+ ZR- ZR	
		9 Blank	Heavy freezing rain Unknown		ZR+ Missing	
28		0	No liquid precipi- tation		Blank	
		1 2	Light rain squall Moderate rain squall		RQ- RQ	·
		3 4 5	Heavy rain squall Light drizzle Moderate drizzle		RQ+ L- L	
		6 7	Heavy drizzle Light freezing drizzle	· .	L+ ZL-	
		8	Moderate freezing drizzle Heavy freezing	<u>:</u>	ZL ZL+	· · · · · · · · · · · · · · · · · · ·
		Blank	drizzle Unknown	· ·	Missing	
29	Frozen Precipita-	0	No frozen precipi- tation		Blank	
	tion	1 2 3	Light snow Moderate snow Heavy snow		S- S- S+	
		5	Light snow pellets Moderate snow pellets		SP- SP	
		6 Blank	Heavy snow pellets Unknown	-	SP+ Missing	
30		0	No frozen precipi- tation	_	Blank	
		2	Light snow showers Moderate snow showers		SW-	
		3 4 5	Heavy snow showers Light snow squall Moderate snow squall Heavy snow squall		SW+ SQ- SQ SQ+	·
		6 Blank	Heavy snow squall Unknown		SQ+ Missing	·
31		0	No frozen precipi- tation	÷	Blank	
		1 2 3	Light sleet Moderate sleet Heavy sleet		E- E E+	
1	1	1	1		I	·

•	8		CARD	CONTENT		SOURCE CONTENT
Col - umns	item '	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
31	Frozen Precipi- tation	4 5 6 7 8 9 Blank	Light hail Moderate hail Heavy hail Light small hail Moderate small hail Heavy small hail Unknown		A- A A+ AP- AP AP+ Missing	
32	Obstruc- tions to Vision	0 1 2 3 4 5 6 7 8 9 Blank	No obstruction Light fog Moderate fog Dense fog Light ice fog Moderate ice fog Dense ice fog Light ground fog Moderate ground fog Dense ground fog Unknown		Blank F- F F+ IF- IF GF- GF GF SF+ Y:ssing	
33		0 1 2 3 5 7 8 9	No obstruction Light smoke Moderate smoke Dense smoke Light smoke and haze Moderate smoke and haze Dense smoke and haze Unknown		Blank K- K K+ E EH- KH KH+ Missing	
34		0 1 2 3 4 5 6 7 8	No obstruction Light dust Moderate dust Heavy dust Light blowing snow Moderate blowing snow Heavy blowing snow Light drifting snow Moderate drifting snow Heavy drifting snow Unknown		Blank D- D D+ BS- BS BS+ GS- GS GS+ Missing	
35		0 1 2 3	No obstruction Light blowing dust Moderate blowing dust Heavy blowing dust		Blank BD- BD BD+	

			CARD	CONTENT		SOURCE CONTENT
Col – umns	item	Code	Code Definition	, Remarks	Units or Symbols	Reporting and Coding Practices
	Obstruc- tions to Vision	4 5 6 7 Blank	Light blowing sand Moderate blowing sand Heavy blowing sand Spray Unknown	•	BN- BN BN+ Spray Missing	
36-38	Pressure		900 to 1099 milli- bars Less than 1000 milli- bars	Sea level pressure punched to tenths of a mil- libar	Millibars to Tenths	EXAMPLE: $\begin{array}{cccccccccccccccccccccccccccccccccccc$
	Dry Bulb Tempera- ture	00-99 X	O°F to 99°F Minus (-), or 100° temperature or over	X overpunched in column 39 indicates minus (-) temperature. Xow-rpunched in column 40 indicates temperature equal to or greater than 100 degrees.	0°F to 99°F	
41-42	Dew Point		0°F to 99°F Minus (-) dew point reading	X overpunched in column 41 indicates minus (-) dew point reading.	0°F to 99°F	
43-44	Wind Direction	54 55 56 66 76 77 78 88 18	Calm North Northeast Northeast East Northeast East Southeast South Southeast South Southeast South Southwest South Southwest West Southwest West Northwest Northwest North Northwest North Northwest Unknown		00 1	Also recorded as: Calm NNE NE NE ENE E E E SE SSE SSW SW WSW WSW WNW NNW NNW NNW N
45-46	Wind Velocity		0 to 99 Knots 100 knots or more	X overpunched in column 45 indicates 100 knots or more.	Whole Knots	

			CARD (CONTENT		SOURCE CONTENT
Col – umns	item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
47	Pressure Tendency	0	Rising, then falling Rising, then steady; or rising, then ris- ing more slowly	·	0	Usually recorded every 3 hours
		2 3 4	Unsteady Steady or rising Falling or steady, then rising; or ris-	now higher than or the same as 3	2 3 4	
		<u>5</u>	ing, then rising more quickly Falling, then rising Falling, then steady or falling then fall-		5	
		7 8 9	ing more slowly Unsteady Falling Steady or rising, then falling; or falling, then fall-	Barometer now lower than 3 hours ago.	6 7 8 9	
		Blank	ing more quickly Unknown	J	Missing	·
18-49	Amount of Pressure		0 to 9.9 Millibars		Whole Millibars	Usually recorded every 3 hours
	Change	X	10 or more Millibars	X overpunched in column 48 indicates 10 or more millibars.	Tenths of Millibars	
50	Amount of Low Cloud	0-9 X	O to 9 tenths An X punched in column 50 indicates 10-tenths	9+ was punched as "10"-tenths. Few clouds were punched as "0". 1- cloud amount was punched as "0".	0 - 10 1-, F, 9+	
	Low Cloud Type	0 1 2	No low clouds Stratus Stratocumulus		0 ST SC	When more than one type of cloud was reported the predominant type was the only type punched.
		3 4 5 6 Blank	Cumulus Cumulonimbus Nimbus Fog Unknown		CU CB NS F Missing	
52-53	Height of		0 to 9500 feet XX punched in columns		Feet	
			52 and 53 indicates "No low clouds" Unknown		Missing	
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			CARD	CONTENT		SOURCE CONTENT
Col - umns	item	Code	Gode Definition	Remarks .	Units or Symbols	Reporting and Coding Practices
54	Amount of Middle Cloud	0-9 X	O to 9-tenths An X punched in column 54 indicates 10-tenths	9+ was punched as "10"-tenths. Few clouds were punched as "0". 1- cloud amount was punched as "0".	0 - 10 1-,F,9+	
55	Middle Cloud Type	0 1 .2 3 4 5 Blank	No middle clouds Altostratus Altocumulus High Cumulus High Cumulonimbus Nimbostratus Unknown		O AS AC HI CU HI CB NS Missing	
56-58	Height of Middle Cloud	050-250 XXX Blank	5000 to 25,000 feet XXX punched in col- umns 56-58 indicates "No middle clouds" Unknown	Recorded and punched to hundreds of feet.	Feet Missing	
59	Amount of High Cloud	0-9 X Blank	O to 9-tenths An X punched in column 59 indicates 10-tenths Unknown	9+ was punched as "10"-tenths. Few clouds were punched as "0". 1- cloud amount was punched as "0".	0 - 10 1-,F,9+ Missing	
. 60	High Cloud Type	0 1 2 3 Blank	No high clouds Cirrostratus Cirrus Cirrocumulus Unknown		0 CS CI CC Missing	
61-62	Height of High Cloud	XX	15,000 to 40,000 feet XX punched in col- umns 61-62 indicates "No high clouds" Unknown	Punched to thousands of feet	Feet	
63	Total Cloud Amount	. х	O to 9-tenths An X punched in column 63 indicates 10-tenths total cloud amount Unknown	9+ was punched as "10"-tenths. Few clouds were punched as "0" 1- cloud amount was punched as "0".	0 - 10 1-,F,9+ Missing	Total cloud amount punched as recorded. If not reported, column 63 was left blank.

REFERENCE MANUAL

110 NAVY MARINE SURFACE OBS. (WBAN 11)

	•	•	CARD	CONTENT		SOURCE CONTENT
Col – umns	item	Code	Gode Definition	Remarks	Units or Symbols	Reporting and Coding Practices
64-65	Wet Bulb	0-99 X	O° F to 99° F Minus (-) wet bulb reading Unknown	X overpunched in column 64 indicates minus (-) wet bulb reading.	Tenths Missing	Rounded to whole degrees before punching.
66–67	Water Tempera- ture	00-99 Blank	O° F to 99° F Unknown		Whole Degrees Missing	
68-70	Relative Eumidity	000-100	O to 100 percent		Whole Percent Missing	
71	State of Sea	0 1 2 3 4 5 6 7 8 9 Blank	Flat, oily Calm, rippled Smooth (wavelets) Slight Moderate Kough Very rough High Very high Mountains Unknown	Height of wave, crest to trough: 0 1	0 - 9	-
72	Direction of Sea	0 2 3 4 5 6 7 8 1 X	Calm Northeast East Foutheast South Couthwest West Northwest North Unknown Missing	•	C NE ENE, E, ESE SE SSE, S, SSW SW WSW, W, WNW NW NNW, N, NNE Unknown Missing	
73-74	Height of Swell	00-99	0 to 99 feet		Feet	
75	Direction of Swell	0 2 3 4 5	Calm Northeast East Southeast South		C NE ENE, E, ESE SE SSE, S, SSW	

			CARD	CONTENT		SOURCE CONTENT
Col – umns	item .	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
75	Direction	6	Fouthwest		SW LINU	
	of Swell	7 8	West Northwest		WSW, W, WNW	
		1	North	·	NNW, N, NNE Unknown	
		X Blank	Unknown Missing		Missing	
6-77	Period of Swell	00-39	O to 39 seconds		Seconds	
	Ship Number	0-999	Arbitrary number assigned to Navy ships	•	0–999	Whenever possible the ship's number was assigned in numerical sequence, according to the alphabetical arrangement of the ship's names.
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